ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED REISSUANCE OF NPDES GENERAL PERMIT GMG290000 FOR NEW AND EXISTING SOURCES IN THE OFFSHORE SUBCATEGORY OF THE OIL AND GAS EXTRACTION POINT SOURCE CATEGORY FOR THE WESTERN PORTION OF THE OUTER CONTINENTAL SHELF OF THE GULF OF MEXICO

1.0 BACKGROUND

1.1 Purpose and Need. Section 301 of the Clean Water Act (CWA) prohibits the discharge of pollutants in the absence of a permit issued by the U.S. Environmental Protection Agency (EPA) or an approved state under the National Pollutant Discharge Elimination System (NPDES). Section 4 of the Outer Continental Shelf Lands Act renders this requirement applicable to discharges of pollutants by facilities engaged in oil and gas exploration and production activities on the outer continental shelf (OCS) of the United States. Given current technologies, those activities cannot occur without discharges. Hence, issuance of NPDES permits authorizing those discharges is necessary if new OCS oil and gas production is to occur.

1.2 Description of the Proposed Action. EPA Region 6 is proposing to reissue NPDES General Permit GMG290000, which authorizes discharges from new and existing source facilities in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category to the Western Portion of the OCS of the Gulf of Mexico. Effluent limitation guidelines applicable to those sources are codified at Title 40 of the Code of Federal Regulation (40 CFR) Part 435, Subpart A. For discharges into waters of the territorial sea, contiguous zone, or oceans, CWA section 403 requires EPA to consider guidelines for determining potential degradation of the marine environment when issuing NPDES permits. These Ocean Discharge Criteria (40 CFR 125, Subpart M) are intended to "prevent unreasonable degradation of the marine environment and to authorize imposition of effluent limitations, including a prohibition of discharge, if necessary, to ensure this goal" (see 45 FR 65942, October 3, 1980). EPA proposes to reissue the permit for a three-year term.

The intent of issuing a general permit is to streamline the permitting process where the permitted facilities possess the following attributes (40 CFR 122.28 (a)(2)(ii)):

- Involve the same or substantially similar types of operations.
- Discharge the same types of wastes.
- Require the same effluent limitations.
- Require the same or similar monitoring, and which

- In the opinion of the Regional Administrator or State Director, are more appropriately controlled under a general permit than under individual permits.

1.3 Proposed Permit. The OCS General Permit was last reissued in 1998. The draft permit proposes to retain the limitations and conditions of that now expired 1998 general permit with the exceptions described below:

a) it adds a specified time limit for collection of produced water sample if a sheen is observed;
b) it deletes a variability factor formerly used in determining compliance with sediment toxicity and biodegradation permit limits;
c) it removes the requirement to submit fourteen day advanced notification of intent for coverage by the permit;
d) it adds a requirement that discharges provide a final discharge monitoring report with notices of termination;
e) it adds new test methods for monitoring cadmium and mercury in stock barite;
f) it adds additional waste streams to the "miscellaneous discharges" category to better represent current deep water technologies;
g) it clarifies toxicity testing requirements to indicate that they do not apply to non-toxic dyes; and,
h) it proposes other minor wording changes to lend further clarity to various permit requirements.

These minor changes should improve EPA permit administration and operator compliance, but they have little or no relevance to environmental concerns. One additional change, however, might arguably have such relevance. The first new source general permit in 1996, specifically prohibited discharges to areas of biological concern, including marine sanctuaries, but the current draft permit proposes to continue the authorization of discharges from an existing natural gas production facility (High Island A-389) located in the Flower Garden Banks Marine Sanctuary (FGB). Authorization of those specific discharges is not subject to review under the National Environmental Policy Act (NEPA), however, because the facility at issue was constructed before EPA promulgated applicable New Source Performance Standards (NSPS) in 1993 and, therefore, is not a "new source" pursuant to the definitions at CWA §306(a)(2) and 40 CFR §122.2. EPA NPDES permitting actions are exempt from NEPA review except when permits apply to "new sources" (see CWA §511(c)(1)). Nevertheless, the Agency is providing information on these discharges in this Environmental Assessment (EA) to enhance public and intergovernmental participation in this permit action.

1.4 Scope of Review. EPA Region 6 has been regulating OCS discharges by general permit since 1981 (see 45 Fed. Reg. 20284, April 3, 1981). Until it promulgated NSPS for the Offshore Subcategory in 1993, EPA's OCS permit actions were exempt from the requirements of NEPA, pursuant to CWA Section 511(c)(1). In 1996, EPA Region 6 issued its first general permit authorizing discharges from "new sources" to OCS waters of the Gulf (see 61 Fed. Reg. 41609, August 9, 1996); Table 1, *ante*. In connection with that permit action, EPA Region 6 issued a

Supplemental Environmental Impact Statement (SEIS) in 1994, that adopted and supplemented an earlier 1992 EIS prepared by the Minerals Management Service (MMS) of the Department of the Interior. That SEIS further examined water quality effects of discharges from OCS facilities. When it last reissued the OCS permit in 1998, Region 6 found that reissuing the permit would have no environmental effects that were not fully considered in 1996 (see 63 Fed. Reg. 58722, November 2, 1998).

In 2002, MMS published an EIS evaluating nine proposed OCS oil and gas lease offerings in the MMS Central and Western Planning Areas (Figure 1). Those offerings were scheduled to occur from 2003 through 2007. The MMS EIS analyzed a wide range of potential impacts that might result from its lease sales, including effects associated with construction and operation of platforms, wells, and pipelines. The effects of the discharges that EPA is now proposing to authorize were included in that analysis. The MMS EIS also included a cumulative analysis considering impacts resulting from the incremental effects of lease sales in connection with all past, present, and reasonably foreseeable future human activities on the OCS, including existing oil and gas activities and unrelated activities such as import tankering and commercial fishing. The final MMS EIS is available online at:

http://www.gomr.mms.gov/homepg/regulate/environ/nepa/cw2003-2007.html.

With one exception, the NEPA analysis of the 2002 MMS EIS fully addresses the potential environmental impacts associated with EPA's action in reissuing the OCS general permit. EPA thus adopts the 2002 MMS EIS for compliance with NEPA. A copy of the MMS EIS is being recirculated with this EA in accordance with 40 CFR §1506.3(b). The 1994 EPA SEIS, referenced in Section 1.4, that focuses on water quality effects of discharges to be authorized in the proposed permit is available from EPA Region 6 on request.

The primary purpose of this EA is to evaluate an environmental concern regarding discharges of produced water to the hypoxic zone of the Gulf of Mexico. In light of available information on hypoxia and to address concerns raised during the permit reissuance process, EPA is examining the potential for produced water discharges from oil and gas production activities to contribute to Gulf hypoxia.

2.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The physical resource in the Gulf of Mexico that EPA's action may affect is water quality in the hypoxic zone. The biological resources that may be affected by this action include continental shelf benthic resources, marine mammals, sea turtles, and fish that may occur in or transit the hypoxic zone. Section 3 of the adopted 2002 MMS EIS provides a detailed description of the physical and biological resources that may be present in the hypoxic zone.

2.1 Description of the Hypoxic Zone. The hypoxic zone of the Gulf of Mexico has long been degraded due to low concentrations of dissolved oxygen. Hypoxic conditions are believed to be

caused mainly by high concentrations of nutrients in the discharge from the Mississippi River into the Gulf of Mexico. The hypoxic zone has been found to be generally increasing in size and has covered an area of up to 18,000 km^2, extending westward from the Mississippi River delta and at times reaching waters offshore of Texas (see Figure 2). As a result of that nutrient enrichment, a highly-elevated level of biological productivity occurs in the upper, less saline, portion of the water column. Carbonaceous matter settles from that highly- productive upper layer and, through the process of decaying, consumes the available dissolved oxygen in the lower water column, resulting in the hypoxia. The hypoxic waters occur from shallow (4 to 5 meters) near shore waters to deeper waters (up to 60 meters), but more typically appear between 5 and 30 meters (CENR, 2000). Hypoxia occurs mostly in the lower water column but encompasses as much as the lower one-half to two-thirds of the water column (CENR, 2000).

The evidence for nutrient over-enriched production in the northern Gulf of Mexico and its linkage with oxygen depletion in the lower water column is consistent with the eutrophication process, with data and experiences world-wide and with Gulf- and basin-specific information on a variety of scales (CENR, 2000). Scientific investigations over the last several decades indicate overwhelmingly that oxygen stress in the northern Gulf of Mexico is caused primarily by excess nutrients delivered to Gulf waters from the Mississippi-Atchafalaya River Basin (MARB), in combination with the stratification of Gulf waters (CENR, 2000).

A study of the response of Gulf hypoxia to variations in the Mississippi River nitrogen loading postulates that oxygen-consuming materials are proportional to the loading rate of May-June river total nitrogen (Scavia et al., 2003). This study developed a model, driven by river nitrogen load and a simple parameterization of ocean dynamics, which reproduced 17 years of observed hypoxia location and extent, subpycnocline oxygen consumption, and cross-pycnocline oxygen flux (Scavia et al., 2003).

Nitrogen in the Mississippi-Atchafalaya River drainage is present primarily in three forms: dissolved inorganic nitrogen (nitrate and ammonium), dissolved organic nitrogen, and particulate organic nitrogen. Total nitrogen is the sum of these three forms. For 1980-96, the average total nitrogen flux from the MARB to the Gulf was estimated to be 1,567,900 metric tons (1,728,296 short tons) per year. Of this amount, about 63 percent was dissolved inorganic nitrogen (61 percent nitrate and 2 percent ammonium), 24 percent was dissolved organic nitrogen and 13 percent was particulate organic nitrogen (CENR, 2000). As nitrogen transforms to more oxidized forms (nitrification), oxygen is consumed. Calculations (see Tables 4 and 5) utilizing the nitrification model (EPA, 1985), indicate an annual average nitrogenous biochemical oxygen demand (NBOD) of 4,275,103 short tons exerted on Gulf waters due to the nitrogen loading from the MARB.

While nitrification exerts an oxygen demand, studies indicate that the greater cause of oxygen depletion in Gulf waters may be attributable to the conversion of nitrogen to algal carbon, and the oxygen demand produced by the oxidation of algal carbon (Scavia et al., 2003). Simply put, riverine nitrogen input stimulates algal production, the algae settles to the bottom, and then

decomposes, consuming oxygen faster than it is replenished. We calculate the oxygen demand using the Redfield ratio to convert nitrogen to algal carbon (5.67g Cg^{-1} N), a respiratory quotient of 0.77 for oxygen consumption (3.47g O_2 g^{-1} C), and an estimate that 50 percent of surface algal production settles to the bottom. This model was developed to predict the response of Gulf of Mexico hypoxia to variations in riverine nitrogen load and was validated by reproducing 17 years of observations. Applying the model to the estimated annual MARB total nitrogen loading of 1,728,296 short tons, indicates 13M short tons of oxygen demand produced annually by the algae uptake of nitrogen and its subsequent decomposition.

2.2 Ecological Consequences of Hypoxia. The consequences of hypoxia are not fully known. However, the shallow continental shelf area in the Gulf of Mexico that is affected by hypoxia shows signs of hypoxia-related stress i.e., low abundance of fish and shrimp and distinctly different benthic communities. While current ecological conditions are a response to a variety of stressors, the most obvious effects of hypoxia are that many bottom-dwelling (benthic) organisms die, larger, long-lived species are eliminated, and productivity is shifted to non-hypoxic periods (energy pulsing). Effects of hypoxia on fishery resources could include direct mortality of both fish and their food base, as well as such indirect effects as altered migration patterns, reduction in suitable habitats, increased susceptibility to predation and disease, and disruption of spawning and recruitment (CENR, 2000).

Studies are ongoing to determine the exact impact of hypoxia on the biological resources in the Gulf of Mexico. The authors of *Ecological and Economic Consequences of Hypoxia, Topic 2: Report for the Integrated Assessment on Hypoxia in the Gulf of Mexico*,[1] determined that the shallow continental shelf area affected by hypoxia does show signs of hypoxia-related stress. The report states that while current ecological conditions are a response to a variety of stressors, the effects of hypoxia are most obvious in the benthos that experience mortality, elimination of larger long-lived species, and a shifting of productivity to non-hypoxic periods (energy pulsing). The authors admit uncertainty as to whether hypoxia leads to higher productivity during productive periods, or simply to a reduction of productivity during oxygen-stressed periods.

Fisheries data cited in the report failed to detect effects attributable to hypoxia because, overall, fisheries landings statistics for at least the last few decades have been relatively constant. The report suggested either (1) hypoxic effects are small relative to the overall variability in the data sets evaluated, (2) the data and the power of the analyses are not adequate, or (3) currently there are no hypoxic effects on fisheries.

In summary, the report determined that any effect of hypoxia in the northern Gulf of Mexico is intertwined with other environmental stressors. It suggested that understanding of specifically how hypoxia affects resources in the Gulf first requires determination of the contribution of all natural and anthropogenic sources of mortality and growth to population dynamics.

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[1] Prepared for NOAA by Robert J. Diaz and Andrew Solow, May 1999

2.3 Oil and Gas Extraction Activities in the Hypoxic Zone of the Gulf of Mexico. According to MMS data, 1731 oil and gas wells currently discharge under authority of EPA's general permit, in the area defined as the hypoxic zone. MMS, the Offshore Operators Committee, and EPA jointly agreed on June 9, 2004, that platform/well activities in a defined set of lease blocks are considered to discharge to the hypoxic zone. EPA has relied on data from the MMS Oil and Gas Accountability Reports database to determine the number of platforms/wells located within and the volume of produced water historically discharged to the hypoxic zone. Table 2 lists the lease blocks included in the footprint defined as the hypoxic zone (Rabalais et al. 2002).

Oil and gas extraction waste streams are characterized by source and include drilling fluids, drill cuttings, produced water, produced sand, well treatment completion and workover fluids, deck drainage, sanitary water, domestic waste, and miscellaneous discharges. The volume and potential for toxic contaminants in discharges of produced water, as well as drilling fluids and cuttings, make these waste streams of greatest concern. The proposed permit implements toxicity testing to control toxic and non-conventional pollutants[2] and Ocean Discharge Criteria pursuant to CWA §403(c).

2.4 Produced Water Discharges to the Hypoxic Zone. Produced water is the water (brine) brought up from the hydrocarbon bearing strata during extraction of oil and/or gas and can include formation water, injection water, small volumes of condensed water, and trace amounts of treatment chemicals. Produced water is the highest volume waste generated in association with oil and gas production operations (CAPP, 2001). The amount of produced water from a reservoir varies widely and increases over time as the reservoir is depleted (NRC, 2003). Produced water is characterized in EPA's *Development Document Effluent Limitations Guidelines and New Source Performance Standards for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category* (1993). That characterization is shown at Table 3.

The proposed permit requires treatment of produced water in accordance with Offshore Subcategory guidelines for NSPS (40 CFR §435.15) and BAT (40 CFR §435.13) requiring Oil and Grease limits of 29 mg/l, monthly average, and 42 mg/l, daily maximum. The proposed permit requires testing of produced water for toxicity using EPA standardized whole effluent toxicity testing (7-day average minimum and monthly average minimum *No Observable Effect Concentration*).

MMS has provided information to EPA that approximately 180 new oil and gas wells will be completed in the hypoxic zone each year (Table 4). EPA and MMS estimate that each new well will, on average, discharge 50 barrels of produced water per day. The total annual discharge of produced water to the zone from new wells is estimated to be approximately 3.3 million barrels. This equates to an estimated 0.014 percent of the total oxygen demand to the hypoxic zone. As wells reach the end of their productive life, however, they are shut in and their produced

[2] Along with NSPS limits for new source facilities, best conventional pollution control technology (BCT) to control conventional pollutants, and best available pollution control technology economically achievable (BAT).

water discharges cease. Data spanning the period 1996-2002 provided by MMS suggests that the overall trend is for a net decrease in the number of producing wells in the hypoxic zone (see Table 4). No short term net increase in the volume of produced water discharged to the Gulf hypoxic zone is anticipated, but increasing emphasis and incentives for domestic production may revise that trend in the future. Figure 2 illustrates the location of oil and gas platforms in the hypoxic zone.

2.5 Potential Impacts of Produced Water Discharges in Hypoxic Zone. Factors that affect the amount of produced water constituents and their concentrations in seawater and, therefore, their potential for impact on aquatic organisms, include the following (Georgie et al. 2001):

- dilution of the discharge into the receiving environment;
- instantaneous and long-term precipitation;
- volatilization of low molecular weight hydrocarbons;
- physical-chemical reactions with other chemical species present in seawater that may affect the concentration of produced water components;
- adsorption onto particulate matter; and,
- biodegradation of organic compounds into other simpler compounds.

Within the marine environment, it is necessary to distinguish between shallow, poorly flushed coastal areas and the open ocean. For offshore operations, key factors include concentration of constituents and other characteristics of the constituents such as toxicity, bioavailability, and form. Actual fate and effects vary with volume and composition of the discharge and the hydrologic and physical characteristics of the receiving environment (Rabalais et al. 1992). It is important to understand that translating produced water constituents into actual impacts is not a trivial exercise.

In light of heightened concern about the causes and remedies for Gulf hypoxia, EPA has examined the potential for oil and gas extraction discharges to contribute to Gulf hypoxia. EPA has focused its analysis on the oxygen-demanding properties of produced water because, as noted above, produced water constitutes the largest volume waste stream from oil and gas extraction activities. EPA Region 6 has not historically required the submission of BOD, TOC, or COD monitoring data from offshore oil and gas operators and has, thus, relied upon MMS for characterization of the oxygen demand of produced waters. MMS has provided BOD data collected from a study of sixteen offshore Gulf of Mexico platforms. The analysis yields a mean value of 1007 mg/L for BOD_{21} with a Cv of 0.93, indicating a high variability to the data. Table 4 illustrates the estimated annual loading of BOD_{21} contributed by produced water for discharges from the years 1996-2002. Peak loading was 45K short tons in 1999-2000 with the most recent 2002 data indicating BOD_{21} loadings of 41K short tons.

In 2003, the National Research Council (NRC) of the National Academy of Sciences, issued a report, compiled by a committee of fourteen scientists and engineers, entitled *Oil in the Sea III: Inputs, Fates and Effects.* That report was compiled after MMS approached the Ocean

Studies Board to update the previous 1985 report addressing petroleum hydrocarbon discharges to the marine environment, and after funding was provided by the MMS, the U.S. Geological Survey (USGS), the Department of Energy (DOE), the EPA, the National Oceanic and Atmospheric Administration (NOAA), the U.S. Coast Guard (CG), the U.S. Navy, the American Petroleum Institute, and the National Ocean Industries Association.

The NRC report estimates that oil and gas extraction activities contributed only about 1.2 percent of the average annual releases (1990-1999) of petroleum hydrocarbons to the North American marine waters. The greatest contributor of petroleum hydrocarbons, about 63 percent, is attributed to natural seeps. However, the predominant contributor of petroleum hydrocarbons discharged into North American marine waters by oil and gas activities is from produced water discharges, which release low but continuous amounts of dissolved components and dispersed crude oil. The 2002 MMS EIS estimates approximately 0.003 million metric tons of petroleum hydrocarbons discharged, based on 1995 data. The NRC report recommends additional studies by federal agencies, particularly NOAA, MMS, the Coast Guard, EPA, and the USGS, in conjunction with industry, to increase the understanding of fate and transport of petroleum hydrocarbon released into the marine environment from a variety of sources and the ecological impacts of these releases. (NRC, 2003).

2.6 Impacts on Biological Resources. Authorized discharges from oil and gas activities have been ongoing in the Gulf since 1981. EPA currently has no evidence that the volumes of produced water authorized for discharge significantly impact the ambient dissolved oxygen levels and subsequently impact biological resources. Based on analysis of the quantity of oxygen demand from produced water discharges, significant impacts to the biological resources in the hypoxia zone are not anticipated at the current level of discharge of produced water from oil and gas activities. Localized effects from discharges have been observed near exploratory and production activities; however, available information does not note significant reduced ambient dissolved oxygen levels in marine waters as a result of the discharges. While hypoxia does occur in areas where oil and gas activities occur, clear evidence does not indicate that hypoxia occurs at greater frequency in the vicinity of discharges. Evidence rather points to hypoxia as result of other forces such as climate, stratification of Gulf waters, and nutrient contributions.

As noted earlier, hypoxia in the Gulf of Mexico is believed attributable primarily to nutrient contributions from the Mississippi-Atchafalaya river system. When hypoxic bottom waters occur in the marine environment, species that are able to ambulate away from the areas of low oxygen appear to do so. Those unable to avoid the hypoxic waters typically die, particularly benthos which live in sediments at the zone of critically depressed oxygen. In areas where hypoxic conditions exist, the effects of the additional low dissolved oxygen and oxygen demanding pollutants from the produced water are compounded by already low ambient levels of dissolved oxygen. The 1993 study, *Influence of Hypoxia on the Interpretation of Effects of Petroleum Production Activities*, (Rabalais et al.), noted that significant decreases in species richness and abundance of organisms were noted during periods of hypoxia/anoxia; however, the study did not associate the hypoxia/anoxia to petroleum production activities. EPA, in partnership

with MMS, will conduct a targeted study to collect the information necessary to determine whether or not increases in produced water discharges may result in unreasonable degradation of the marine environment.

3.0 ALTERNATIVES

3.1 Alternative A: Short-Term Reissuance - The Preferred Alternative. Alternative A is the best alternative for meeting the regulatory requirements and expediting the permitting process for offshore oil and gas facility discharges. Issuance of the general NPDES permit for a three year term will provide reasonable protection to the affected environment, be less administratively obstructive and financially and resource cost intensive, and enable timely collection of the desired data. Currently, OCS discharges to the hypoxic zone are not seen to be increasing, but that trend could change, given the current crude oil market and MMS leasing initiatives. By reissuing the permit for less than a full five-year term, the potential for adverse effects that may be associated with the increased discharges resulting from a longer term permit would be avoided. Also, given the existing uncertainties in the effects of produced water on Gulf hypoxia, a joint study by EPA and MMS during the three year life of the permit would provide additional data to evaluate the potential effects of such an increase in produced water discharges in the hypoxic zone. In the event that the study indicates that oil and gas activities significantly contribute to hypoxia in the Gulf, EPA can re-open the permit based on the new information or limit the discharges when the permit is reissued.

3.2 Alternative B: Full Term Reissuance. NPDES permits are normally issued and reissued for five year terms. Given the current price of crude oil and MMS leasing priorities, oil production in the vicinity of the hypoxic zone might increase over the life of a five year permit. The corresponding increase in the oxygen demand potentially associated with the discharge of produced water might add to the hypoxic zone.

3.3 Alternative C: Limited Area Reissuance. This alternative would reissue the OCS General Permit without providing coverage to operators in lease blocks that discharge to the hypoxic zone. Operators in those lease blocks would have to apply for individual permits. The administrative process requirements to issue individual permits would be prohibitively time and resource demanding, resulting in potentially significant disruption in the operation of new production facilities in those lease blocks. Because the general permit would authorize discharges in the remainder of the western OCS, fewer oil and gas operations would be affected than by the No-action Alternative. Although fewer individual permit actions would be required than under the No-action Alternative, EPA Region 6 staff resources would still not be able to process individual permits. The alternative is infeasible and Region 6 does not intend to further consider it.

3.4 Alternative D: Prohibition of Discharges. This alternative would prohibit discharges from OCS facilities to the hypoxic zone. OCS operators that intend to or currently discharge to the hypoxic zone would either have to develop and utilize alternative waste disposal methods, e.g., deep well injection, or forego production operations to ensure that OCS discharges would not

contribute to Gulf hypoxia. This would ensure that OCS discharges would not contribute to hypoxia in the Gulf. The most probable basis for imposing such a discharge prohibition would be EPA's Section 403(c) of the CWA and the criteria at 40 CFR 125, Subpart M. This alternative is not supported by the available scientific information and could have significant negative impacts on the oil and gas industry with potentially limited positive impact on hypoxia.

3.5 Alternative E: No Action. The No-action Alternative would occur if no general NPDES permit is issued for new source OCS oil and gas facilities. If EPA does not reissue the OCS general permit, the expired general permit would continue to provide discharge authorization to operators who submitted notices of intent to be covered prior to its expiration. New facilities would not be allowed to discharge to the Western Gulf of Mexico unless they obtained individual permits authorizing the discharges. NEPA review would be required on each individual permit action. Permit conditions for each new production facility might vary depending on additional information about the relationship between each individual discharge and hypoxia at the time of each individual permit action. Most likely, however, new information on hypoxia would be developed too slowly to result in many such differences.

The administrative process associated with issuing individual permits to new sources would be prohibitively time and resource demanding, resulting in potentially significant disruption in the construction and operation of new production facilities in those lease blocks. EPA Region 6 staff resources would not be sufficient to process individual permits and delays and inaction associated with the processing of individual permits to each new OCS discharger could significantly decrease oil and gas production on the OCS. Due to resource constraints, this alternative is infeasible and has been eliminated from further consideration.

3.6 Alternative F: Effluent Trading Alternative. Under this alternative, the general permit would prohibit new OCS discharges to the hypoxic zone unless and until the operator had acquired an offset to his discharge. These offsets could be acquired by ceasing or reducing existing discharges of produced water to the hypoxic zone, either by shutting in existing production wells or by using alternative treatment/disposal technologies. This approach would stabilize hypoxic zone loadings, if any, attributable to OCS discharges. It might also result in earlier shut in of existing production wells, resulting in a net decrease in OCS oil and gas production at a time when the U.S. seeks to decrease its dependence on foreign energy sources.

Design and implementation of a trading program would be costly and administratively prohibitive due to the additional oversight, new record-keeping and monitoring requirements by EPA. Based on the available scientific information, there is no means of determining that this approach would have a positive effect on the hypoxic zone. As available information indicates a near term net decrease in OCS produced water discharges to the hypoxic zone over the life of the permit, it does not appear that the potential losses of production or the additional resource demands associated with this alternative are justified.

3.7 Comparison of Feasible Alternatives. Alternative A would reissue the OCS permit for a three year term, effectively lowering the potential risk to the hypoxic zone associated with the increases in the discharge of produced water discharges. According to EPA calculations, Alternative A is not anticipated to contribute significantly to the physical and biological resources located within the hypoxic zone. Although no net increases are anticipated over the next three years, the joint study by EPA and MMS could produce the information needed to analyze alternatives when that short term permit is reissued.

Alternative B would provide five year general permit coverage for new sources. Reissuance of a five year permit at the present time has the potential risk that the resultant increased produced water discharges could significantly affect physical and biological resources in the hypoxic zone. Although expiration of the five year permit term would enable EPA to revisit the findings of its NEPA evaluation, it would continue the uncertain understanding of the relationship of produced water discharges, hypoxia, and ecological resources.

Alternatives C, D, E and F are considered infeasible due to the time and resource intensive nature of individual permits and the potential retardation of the development of energy resources in the Gulf. Prohibiting all produced water discharges to the hypoxic zone would eliminate the current effects, if any, that such discharges have on the zone and on the biota within it. However, it would likely lead to significant reductions in domestic oil and gas production, increased dependency on foreign oil and gas sources, and higher consumer energy prices. With the current knowledge or understanding of the effects of produced water on hypoxia, EPA does not anticipate that any significant improvement to ecological resources would result from the prohibition of discharges or the issuance of individual permits.

The Alternative F trading program would ensure that there would be no net increase in the effects, if any, that produced water discharges currently have on the hypoxic zone and its biota. An effluent trading program would not necessarily reduce such effects in the future and protect ecological resources within the hypoxic zone, but the EPA believes that the time and cost of designing and implementing such a trading program would offset any benefits. An effluent trading program could impose a potentially significant paperwork burden on some OCS oil and gas operators and increase the demand for EPA staff oversight resources. It might also lead to earlier shut-ins of oil and gas wells in the hypoxic zone, with attendant loss of some oil and gas, but might spur development of new produced water treatment/disposal technologies. Net OCS energy production would probably decline, but not to the extent associated with a discharge prohibition.

None of these alternatives would eliminate the hypoxic zone. Based on available information, no alternative appears likely to significantly affect the hypoxic zone. EPA estimates indicate that produced water contribute a small increment (an estimated 1%) to the nutrient loading that causes hypoxia in the Gulf. Reissuance of the OCS general permit without a discharge prohibition or effluent trading program would not significantly affect the economics of

oil and gas production on the OCS during the term of the permit, regardless of whether that term is three or five years.

4.0 THE FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY.

As noted in §1.3 above, EPA's authorization of discharges from an OCS platform constructed prior to 1993 is exempt from the requirements of NEPA. Nevertheless, the Agency is discussing such a discharge here to foster public and interagency participation opportunities in this permit action. It should be noted that the resource at issue (Flower Garden Banks National Marine Sanctuary) and the production platform at issue (High Island A-389) are far away from the hypoxic zone and that this is an entirely different subject.

4.1 Description of the Flower Garden Banks. The Flower Garden Banks (FGB) are part of a widely dispersed discontinuous area of reef environments along the OCS of the Gulf of Mexico (Rezak et al.1985). The FGB are topographic features created when sedimentary rock was uplifted by underlying salt domes of Jurassic, Louann origin (Rezak 1981). The FGB are the northernmost coral reefs in the United States, perched atop salt domes rising above the sea floor, cresting within 66 feet of the ocean's surface (MMS 2002). The area designated as the East Bank is located approximately 120 nautical miles (nmi) south-southwest of Cameron, Louisiana, and encompasses 19.20 square nmi. The area designated as the West Bank is located approximately 110 nmi southeast of Galveston, Texas, and encompasses 22.50 square nmi. The area designated as Stetson Bank is located approximately 70 nmi southeast of Galveston, Texas, and encompasses 0.64 square nmi. The three areas encompass a total of 42.34 square nmi (15 CFR § 922.120).

The FGB provides the necessary habitat for scleractinian corals and other calcareous and sessile marine organisms (MMS 2003). The coral banks in the FGB are the largest charted calcareous banks in the northwestern Gulf of Mexico (Bright et al. 1985). A hard surface for attachment, clear sunlit water, warm water temperatures and a steady food supply forms suitable habitat for corals. The corals are the basis of an ecosystem of shallow-water Carribean reef species, including macro-algae, sponges, crustaceans, elastomobranches (sharks, skates, and rays), fishes and turtles (NOAA 2004). Over 170 species of fish and approximately 300 species of reef invertebrates inhabit the banks. These include at least 27 species of sponges, 20 species of polychaetes, 62 species of molluscs, and 36 species of echinoderms (NOAA, 2002).

Federally designated threatened species that have been observed within the 4-Mile Zone at the FGB include the loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*) and leatherback sea Turtles (*Dermochelys coriacea*). In 1995, sea turtle studies at the FGB National Marine Sanctuary were initiated. Through 1999, over 130 reports of sea turtles at the FGB were collected with the loggerhead sea turtle most commonly reported. On rare occasions, a hawksbill sea turtle has been reported, and once or twice, a giant leatherback sea turtle was spotted traversing the Sanctuary. This study determined that the loggerheads identified living in the FGB are quite specific to the Bank they are captured on, and seem to have a fairly tight home range centering on either of the Banks (Hickerson 2004).

4.2 Establishment of the National Marine Sanctuary and "No Activity Zone". In accordance with the Marine Sanctuaries Act, 16 U.S.C. 1331, *et seq*, the NOAA designated FGB a national marine sanctuary on January 17, 1992. Within the overall boundaries of the sanctuary, NOAA created a "no activity zone" that encompassed the coral reef areas. NOAA regulations prohibit oil and gas operations and associated discharges within the "no activity zone," but allow them subject to conditions in the remainder of the sanctuary, a.k.a., the "4-Mile Zone" (see 15 CFR §922.122). Today, only the High Island A-389 oil and gas platform is operated within the 4-Mile Zone.

4.3 High Island A-389. High Island A-389 is an "A-frame" drilling and production platform constructed in 1981 by Mobil Exploration and Producing, U.S.A., and situated approximately one mile east of the nearest coral formation. The platform currently produces natural gas, but no crude oil, and is manned by two people. In 1994, after designation of the FGB National Marine Sanctuary, NOAA "certified" to MMS that continued operation of the platform was consistent with designation of the sanctuary and its applicable regulations. In 1998, Mobil assigned its lease to Vastar Offshore, which in turn assigned it to W&T Offshore, Inc. (W&T) in 1999. W&T has operated the platform and discharged from it since then.

On November 5, 2002, W&T requested MMS to grant it a right-of-way to construct and operate a four-inch pipeline to transport bulk gas, condensate and produced water from a gas well (Garden Banks Block 139) on another lease block to High Island A-389. The bulk gas and condensate would thereafter be transported ashore via an existing pipeline and the produced water would be discharged. NOAA's Sanctuary Manager commented that discharging additional produced water and construction of the pipeline within the sanctuary boundaries were not consistent with its regulations. MMS issued an EA and FNSI on the proposal on May 30, 2003. EPA understands the four-inch pipeline has been constructed and is currently in service.

4.4 EPA's Enforcement Action. On August 2, 2002, recreational divers notified NOAA that a broken shunt pipe under High Island A-389 was discharging pollutants (later identified as deck drainage and sanitary wastewater) within 30 meters of the surface. EPA Region 6 subsequently issued several administrative compliance orders to W&T, including an October 2, 2002 order to cease all discharges, including the produced water discharges. In response, W&T Offshore shut in its production wells for approximately six months, repaired the broken pipe, and recommenced operations after receiving a schedule order.

A consent agreement and final order, associated with an administrative penalty order under CWA §309(g) for the unauthorized discharges, is currently under negotiation. W&T Offshore has ceased its produced water discharges and is currently disposing of that waste stream by reinjecting it into the seabed floor. The draft permit includes provisions addressing discharges from the High Island A-389 platform. However, should the enforcement action not be concluded by the time a final decision is made on the OCS general permit, coverage of those discharges could be removed from the final general permit and individual NPDES permit actions would be considered.

4.5 Potential Impacts of Discharges from High Island A-389. Of the three waste streams that might be discharged from High Island A-389, produced water has the most potential for adverse environmental effects due to radionuclides, organic compounds, and heavy metals it may contain. EPA's 1994 SEIS fully evaluated the potential impacts of produced water discharges and concluded that low levels of sediment metal accumulation and bioaccumulation could occur within 100 meters of the point of discharge, but that discharges would generally be diluted to background levels at greater distances. Other discharges from the platform, i.e., deck drainage and sanitary wastewater, are similar to routine discharges from dive vessels in the FGB sanctuary and should have very limited effects. Shunting of the discharges to within 10 meters of the seas floor is anticipated to eliminate effects on the coral reefs in the sanctuary's "no activity" zone.

MMS, in conjunction with NOAA's National Marine Sanctuary Division, conducted a program of long-term monitoring at both the East and West FGB. This monitoring effort was designed to assess the health of the coral reefs, evaluate changes in coral population levels, measure coral and algae cover and growth rates, and investigate other community characteristics. The final report of long term monitoring, 1998-2001, is published as MMS 2003-031. The goal of the program was to address concerns related to both gradual and punctuated degradation of these unique offshore ecosystems.

The results of the 1998 through 2001 monitoring efforts were consistent with those of Gittings et al. (1992), CSA (1996), and Dokken et al. (1999;2001) in that variability was common. Growth rates, coral cover, algal cover, and bare rock exposure varied annually. Water conditions, temperature and transmissivity, followed historical patterns staying within the limits required for coral growth and health. Within the boundaries of the study area, there were no indications that commercial or recreational activity in the area had significant negative impact on the health of the coral community. Commercial activities occurring during the period of study included discharges from High Island A-389.

5.0 CONSULTATION AND COORDINATION UNDER OTHER LAWS

5.1 Endangered Species Act Section 7(a)(2) Consultation. The effects of the discharges EPA proposes to authorize were considered in the "no jeopardy" biological opinion issued by the National Marine Fisheries Service (NMFS) to MMS on November 29, 2002, and are part of the environmental baseline established in the formal consultation under Section 7(a)(2) of the Endangered Species Act (ESA). Accordingly, EPA was not required to consult on this proposed action, but has nevertheless initiated consultation with NMFS by letter dated May 14, 2004. A biological evaluation was prepared and forwarded to NMFS requesting concurrence that EPAs determination that reissuance of NPDES General Permit Number GMG290000 may affect, but is not likely to adversely affect the federally listed endangered sperm whale, green turtle, hawksbill turtle, Kemp's ridley turtle, leatherback turtle and the threatened loggerhead turtle, nor will destroy or adversely modify designated critical habitat. By letter dated July 12, 2004, EPA received concurrence from NOAA Fisheries that reissuance of the OCS general permit is unlikely to adversely affect listed threatened and endangered species nor will designated critical habitat be

adversely affected or destroyed. This effects determination is consistent with the determination of effects presented in the 2002 MMS EIS and the subsequent biological opinion expressed by NMFS. A copy of the NMFS concurrence letter is attached.

5.2 Marine Sanctuaries Act. Pursuant to 16 USC §1434(d), federal agencies that take actions likely to injure any marine sanctuary resource are subject to consultation with NOAA. Issuance of discharge authorization for continued discharges from High Island A-389 are not likely to result in such injury. Nevertheless, EPA has discussed its enforcement action with the FGB Sanctuary Manager, is providing NOAA's National Ocean Service with a copy of the proposed permit and this EA, and will consider any reasonable and prudent alternatives it may recommend.

5.3 Magnuson-Stevens Fisheries Conservation and Management Act. Section 305(b)(4)(B) of the Magnuson-Stevens Fisheries Conservation and Management Act requires that federal agencies consult with NMFS on all actions that may adversely affect essential fish habitat (EFH). NMFS has designated the entire Gulf of Mexico EFH. The potentially adverse effects of OCS discharges on EFH are documented and analyzed in the 2002 MMS EIS and MMS and NMFS used that EIS as the EFH assessment for a programmatic Magnuson-Stevens Act consultation, with the understanding that additional consultation might be required in connection with MMS lease sales. Because MMS did not represent EPA in the programmatic consultation, however, duplication of that effort may be required in connection with EPA's permit action. If so, EPA Region 6 intends to rely on the 2002 MMS EIS as its EFH assessment.

EPA has initiated informal discussion with NMFS on the permit and contacted the NMFS informally during the development of NPDES General Permit GMG290000 to discuss the potential impacts of its reissuance on essential fish habitat (EFH). EPA's determination of effects on essential habitat is consistent with the determination presented in the 2002 MMS EIS and the response expressed by NMFS, which concluded EFH consultation. EPA last contacted NMFS on June 24, 2004 to discuss the proposed permit.

5.4 Coastal Zone Management Act. The states of Louisiana and Texas have approved coastal zone management plans. Pursuant to section 307 of the Coastal Zone Management Act, EPA Region 6 has found that the proposed permit is consistent with the enforceable requirements of those plans and provided the states an opportunity for consistency certification. The Louisiana Department of Natural Resources (LDNR) certified on June 23, 2004, that reissuance of the OCS general permit as then drafted was consistent with the Louisiana Coastal Resources Plan. After receiving the revised draft permit, LDNR confirmed the certification on July 12, 2004. A copy of the State's certification letter is attached. The Texas General Land Office has not responded to EPA's determinations.

6.0 LIST OF AGENCIES CONTACTED

U.S. Coast Guard, U.S. Department of Homeland Security,
Minerals Management Service, Gulf of Mexico OCS Region
Office of Coastal Zone Management, NOAA/Department of Commerce
National Marine Fisheries Service, NOAA/Department of Commerce
LSU Center for Wetland Resources, National Marine Fisheries Service
Environmental Assessment Branch, National Marine Fisheries Service
Regional Director, U.S. Fish and Wildlife Service
Center for Coastal Studies, Texas A&M University
Ecological Services, Corpus Christi State University, U.S. Fish and Wildlife Service
U.S. Fish & Wildlife Service, Lafayette, LA
U.S. Army Corps of Engineers
Louisiana Coastal Management Division
Louisiana State Historic Preservation Officer
Louisiana Department of Wildlife & Fisheries
Texas Historical Commission
Texas Coastal Coordination Council
SEPCO
Chevron Texaco ETC
International Assn. of Drilling Contractors

7.0 TABLES, FIGURES, APPENDICES AND CORRESPONDENCE LETTERS

Table 1 - History of Region 6 NPDES Permit Activities affecting the Western Outer Continental Shelf - Gulf of Mexico

Permit No.	Effective Date	Fed Reg Citation	Expiration Date
TX0085642	April 3, 1981	46 FR 20284	April 3, 1983
re-issued	September 15, 1983	48 FR 41494	June 30, 1984
GMG280000 (joint w/EPA-R4, includes Eastern and Western Gulf)	July 9, 1986	51 FR 24897	July 1, 1991
GMG290000 (R6 only; western Gulf from GMG280000)	November 19, 1992	57 FR 54642	November 18, 1997
modified	December 3, 1993	58 FR 63964	November 18, 1997
re-issued adds GMG390000	August 9, 1996	61 FR 41609	November 18, 1997
re-issued Part 1	November 2, 1998	63 FR 58722	November 3, 2003
re-issued Part 2	April 19, 1999	64 FR 19156	November 3, 2003
modified	December 18, 2001	66 FR 65209	November 3, 2003

Permit History

Authorization for discharges from facilities in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category located offshore of Louisiana and Texas was first provided by EPA on April 3, 1981 (46 FR 20284) via three permits. Two of those permits, TX0085651 and LA0060224, authorized discharges from facilities located in the territorial seas off Louisiana and Texas. The third permit, TX0085642, authorized discharges from facilities located seaward of the outer boundary of the territorial seas off Louisiana and Texas, an area commonly known as the OCS. Since 1981, EPA and subsequently Texas and Louisiana have reissued permits allowing discharge by facilities engaged in oil and gas extraction in the Gulf. Table 1 above lists the history of NPDES permits issued by EPA which authorize oil and gas extraction activities in the Western OCS area of the Gulf of Mexico. Originally, the western and eastern portions of the OCS were not delineated by separate permits. In 1992, Region 6 issued the first permit which addresses the Western OCS only. The proposed NPDES general permit for "New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category for the Western Portion of the OCS of the Gulf of Mexico (GMG290000) is EPA's latest iteration authorizing discharges from oil and gas extraction activities for the OCS.

Table 2: Hypoxic Zone by Area and Lease Block

Area	From Block	To Block
Sabine Pass	5	16
West Cameron	22	366
East Cameron	12	15
East Cameron	22	198
Vermilion	21	23
Vermilion	35	232
S. Marsh Island	231	288
S. March Island	1	81
Eugene Island	45	262
Ship Shoal	55	264
South Pelto	1	25
South Timbalier	7	218
Grand Isle	16	86
West Delta	58	77
West Delta	89	99
Bay Marchand	1	6

Table 3 Produced Water Characteristics Following Treatment

Constituent	Concentration after BPT Level Treatment (mg/L)[a]	Concentration after BAT Level Treatment (mg/L) – Gas Flotation Treatment[b]
Oil and grease	25	23.5
2-Butanone	1.03	0.41
2,4-Dimethylphenol	0.32	0.25
Anthracene	0.018	0.007
Benzene	2.98	1.22
Benzo(a)pyrene	0.012	0.005
Chlorobenzene	0.019	0.008
Di-n-butylphthalate	0.016	0.006
Ethylbenzene	0.32	0.062
n-Alkanes	1.64	0.66
Naphthalene	0.24	0.092
p-Chloro-m-cresol	0.25	0.010
Phenol	1.54	0.54
Steranes	0.077	0.033
Toluene	1.901	0.83
Triterpanes	0.078	0.031
Total xylenes	0.70	0.38
Aluminum	0.078	0.050
Arsenic	0.11	0.073
Barium	55.6	35.6
Boron	25.7	16.5
Cadmium	0.023	0.014
Copper	0.45	0.28
Iron	4.9	3.1
Lead	0.19	0.12
Manganese	0.12	0.074
Nickel	1.7	1.1
Titanium	0.007	0.004
Zinc	1.2	0.13
Radium 226 (in pCi/L))	0.00023	0.00020
Radium 228 (in pCi/L)	0.00028	0.00025

(a) BPT = best practicable technology. **(b)** BAT = best available technology. Source: EPA (1993)

Table 4: Annual Produced Water Discharges and BOD_{21} Loadings In Historical Hypoxia Zone 1996-2002

Year	No. Wells	Produced Water (10^3 barrels)	Gallons[1] (million)	Est.Avg.Loading BOD_{21}/Yr.[2] (pounds)	Est.Avg.Loading BOD_{21}/Yr. (short tons)	BOD_{21} Loading Mississippi River (tons)	Percent (%) Loading (Oil/Gas)
1996	2120	233,200	9,794	82,306,408	41,153	4,275,103	0.95
1997	2021	242,200	10,172	85,482,899	42,741	4,275,103	0.99
1998	1992	240,200	10,088	84,777,012	42,389	4,275,103	0.98
1999	1943	254,700	10,697	89,894,692	44,947	4,275,103	1.04
2000	1933	255,400	10,727	90,141,752	45,071	4,275,103	1.04
2001	1828	243,600	10,231	85,977,020	42,989	4,275,103	1.00
2002	1730	231,500	9,723	81,706,404	40,853	4,275,103	0.95
Est.New**	**180**	**3,285**	**138**	**1,159,671**	**580**	**4,275,103**	**0.014**

Sources: Produced Water MMS OGAR database
BOD data from MMS 2004 OOC study

[1]Barrel = 42 Gallons
[2]Est. Annual Avg. Loadings (BOD_{21}/year) = 8.245 x Concentration* (mg/l) x Flow (MG)
*Estimated BOD_{21} concentration loading into hypoxic zone = 1007 mg/l BOD_{21}
**New Wells (new wells estimated to produce 50 bbl/day of produced water)

	Total Drilled	Successful Completions[3]
Exploration Wells	87	26
Development Wells	171	154
Total New	258	180

[3]Based on 90% success for development and 30% for exploration
(Source: MMS June 9, 2004)

Decrease in well producing in hypoxic zone:
390 Total reduction from 1996-2002
65 Net annual reduction
245 Actual annual reduction

Table 5: Calculation of mean annual flux of nitrogen from the Mississippi and Atchafalaya River System into hypoxic zone from 1980-1996

	Metric Tons	Short Tons	Percent
Nitrate	952,700	1,050,161	61
Ammonium	31,000	34,171	2
Dissolved Organic	376,000	414,465	24
Particulate Organic	204,000	224,869	13
Nitrogen Total	1,567,900	1,728,296	100

NBOD loading = 4,275,103 short tons

NBOD = 4.57(NO + N1) + 1.14N2

NBOD = Nitrogen Oxygen Demand

NO = Organic Nitrogen Load

N1 = Ammonia Nitrogen Load

N2 = Nitrate Oxygen Demand

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAY 14 2004

Georgia Cranmore
Assistant Regional Administrator
Protected Resources Division
National Marine Fisheries Service
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702-2432

Subject: Section 7(a)(2) Consultation on the proposed re-issuance of the National Pollution Discharge Elimination System General Permit No. GMG290000.

Dear Ms. Cranmore:

Region 6 of the Environmental Protection Agency proposes to reissue the National Pollutant Discharge Elimination System (NPDES) general permit No. GMG290000 for existing source and New Source facilities in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR Part 435, Subpart A), located in and discharging to the Outer Continental Shelf offshore of Louisiana and Texas. The discharge of produced water to that portion of the Outer Continental Shelf from Offshore Subcategory facilities located in the territorial seas of Louisiana and Texas is also authorized by this permit.

EPA requests concurrence from the National Marine Fishery Service with our determination that the issuance of the NPDES permit No. GMG290000 may affect but is unlikely to adversely affect the federally listed endangered sperm whale, green turtle, hawksbill turtle, Kemp's ridley turtle, leatherback turtle and the threatened loggerhead turtle nor will destroy or adversely modify designated critical habitat. In the absence of such concurrence, this letter further serves as a written request under the provisions of 50 CFR 402.14 to initiate formal consultation with the Service on the effects of permit re-issuance on listed threatened and endangered species.

EPA has determined, based on the distribution of species in the Gulf of Mexico and protections provided by the permit, that the re-issuance of this permit will have no effect on the federally listed sei whale, northern right whale, blue whale, fin whale, humpback whale, gulf sturgeon or West Indian manatee. Please find Attachment 1 which describes the permit action and EPA's determination of effects. Attachments 2 and 3 are the proposed NPDES permit and supporting document, the fact sheet, which explains the methodology for determining permit requirements.

The EPA staff contact for this consultation is Denise Hamilton. Should you have any questions concerning this action, Denise is ready to provide any possible assistance and can be reached by telephone at (214) 665-2775, by E-mail at hamilton.denise@epamail.epa.gov, or by fax at (214) 665-2191.

Sincerely,

Troy C. Hill, P.E.
Acting Chief
NPDES Permits Branch

Enclosures

cc w/o attachments:
US Fish and Wildlife Service, Region 2
US Fish and Wildlife Service, Region 4

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Dr. N.
St. Petersburg, FL 33702
(727) 570-5317, FAX 570-5317
http://sero.nmfs.noaa.gov

JUL 12 2004

F/SER3:KPB

Troy C. Hill, P.E., Acting Chief
NPDES Permit Branch
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Mr. Hill:

This letter is in reply to the May 14, 2004, letter from the U.S. Environmental Protection Agency (EPA) pertaining to re-issuance of a National Pollutant and Discharge Elimination System General Permit (GP) No. GMG290000 for discharges associated with oil and gas exploration and production offshore of Louisiana and Texas. You have requested that we analyze the possible effects on the species listed under the Endangered Species Act (ESA) under the purview of the National Marine Fisheries Service (NOAA Fisheries), pursuant to the interagency consultation requirements of section 7 of the ESA.

History and Summary of the Proposed Action

EPA requested interagency consultation with NOAA Fisheries in 1991 on the GP for Outer Continental Shelf (OCS) waters in the western Gulf of Mexico (GOM). In a letter dated June 28, 1991, we concurred with EPA that the Region 6 GP would not affect listed species under our jurisdiction. In 2001, EPA proposed to add new types of drilling fluids (synthetic-based fluids) to the GP. NOAA Fisheries provided concurrence in a letter dated November 27, 2001, that the proposed changes were not likely to adversely affect listed species.

For the current action the EPA proposes to re-issue the GP for existing source and new source facilities in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR 435), applicable to discharges from sources on the OCS offshore of Louisiana and Texas. The geographic range under consideration for the GP has not changed; however, the following changes to the permit, as listed in the biological evaluation, are proposed:

- The time frame specified for collection of a produced water sample after a sheen is observed is changed to within two hours;
- The discharge prohibitions at National Marine Sanctuaries are clarified in an attempt to better reflect NOAA regulations;
- The variability factor for use in determining compliance with the permit's limitations for sediment toxicity and biodegradation is removed;
- The requirement to submit fourteen day advanced notification of intent to be covered by the permit is removed;

- The final discharge monitoring report will be required to be submitted along with a notice of termination;
- New test methods are allowed for monitoring cadmium and mercury in stock barite;
- Several minor miscellaneous discharges are added to better represent deep water technologies;
- A produced water study is proposed to determine the potential impacts of produced water discharges on the hypoxic zone in the northern GOM;
- Other changes to the permit's miscellaneous discharge requirements are proposed to clarify that water toxicity testing is not required for non-toxic dyes; and,
- Other minor changes in wording are also proposed to resolve confusion of the EPA's intent regarding the permit's requirements.

The proposed re-issuance of the GP would be valid for a period of three years so that the above-mentioned study on the effects of discharges of produced water on hypoxia can be completed and considered in the next re-issuance of the GP.

Threatened and endangered species under the jurisdiction of NOAA Fisheries that are known to occur in the action area of the GP in EPA Region 6 include the sperm whale (*Physeter macrocephalus*), leatherback sea turtle (*Dermochelys coriacea*), Kemp's ridley sea turtle (*Lepidochelys kempii*), green sea turtle (*Chelonia mydas*), hawksbill sea turtle (*Eretmochelys imbricata*), loggerhead sea turtle (*Caretta caretta*), and Gulf sturgeon (*Acipenser oxyrinchus desotoi*).

The following endangered cetacean species are not believed to be resident stocks in the GOM: blue (*Balaenoptera musculus*), sei (*B. borealis*), fin (*B. physalus*), humpback (*Megaptera novaeangliae*), and North Atlantic right whales (*Eubalaena glacialis*). Although these species have been occasionally observed in the GOM, individuals observed have likely been inexperienced juveniles straying from their normal ranges or occasional transients. Resident stocks are not believed to be present in the GOM; therefore, the potential for effects to these species from the proposed action is believed to be extremely low.

Historically, the smalltooth sawfish was common along the GOM coast, but the current range of this species has been reduced to habitats mainly along peninsular Florida, although some individuals distributed along the GOM coast are possible. Smalltooth sawfish are usually found in shallow waters very close to shore over muddy and sandy substrates, but some larger individuals may be found in greater depths. Due to the reduced range of the smalltooth sawfish, NOAA Fisheries believes the potential risk of any harm to smalltooth sawfish off Louisiana and Texas is so low as to be considered discountable. However, the EPA should consider smalltooth sawfish in future environmental assessments for actions occurring in the North Atlantic Ocean and the GOM.

NOAA Fisheries acknowledges that there have been few scientific studies on the effects of contaminants associated with oil and gas extraction on listed species, and existing data are not sufficient to be conclusive. NOAA Fisheries is not aware of any documented take of listed species due to the effects associated with the past issuance of the GP. Because the proposed GP permit seeks to improve monitoring, documentation, and characterization of the discharges to be permitted, NOAA Fisheries believes that it is not likely that the proposed action will cause harm to the species listed above.

Based on our evaluation of the information provided, NOAA Fisheries concurs with the EPA's finding that the re-issuance of the GP may affect, but is not likely to adversely affect any endangered or threatened species under the purview of NOAA Fisheries. No critical habitat is present; therefore, none will be affected. This concludes consultation responsibilities under section 7 of the ESA. A new consultation should be initiated if there is a take, new information reveals impacts of the identified activity that may affect listed species or their critical habitat, a new species is listed, the identified activity is subsequently modified or critical habitat designated that may be affected by the identified activity.

It is recommended that scientific studies continue to investigate the effects of permitted discharges on the OCS. Meanwhile, the EPA should continue to evaluate the cumulative impacts of permitted discharges in the OCS in relation to the other anthropogenic inputs such as atmospheric deposition, inputs from rivers, and other sources affecting the marine environment. Because of the lack of conclusive studies on the effects of discharges into the marine environment, a comprehensive cumulative impact analysis should be completed to better understand the possible impact of anthropogenic discharges on listed species, as well as on the ecosystems upon which they depend.

The EPA must determine if EFH consultation with NOAA Fisheries' Habitat Conservation Division is required pursuant to the Magnuson-Stevens Act's requirements for EFH consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). Consultation is not complete until EFH and ESA concerns have been addressed. If you have any questions about EFH consultation for this project, please contact Heather Young of the Habitat Conservation Division at (409) 766-3699 or via e-mail at Heather.Young@noaa.gov.

We look forward to the continued cooperation between our two agencies in conserving our endangered and threatened resources. We are interested in the results of the study of the effects of produced water on the hypoxic zone and would appreciate a copy of the report when it is available. If you have any questions regarding this letter, please contact Kyle Baker of the Protected Resources Division at the number listed above or via e-mail at Kyle.Baker@noaa.gov.

Sincerely,

Roy E. Crabtree, Ph.D.
Regional Administrator

cc: Denise Hamilton – EPA Region 6
F/SER42 – H. Young
F/PR3

File: 1514-22.K.4 TX
Ref: I/SER/2004/00663

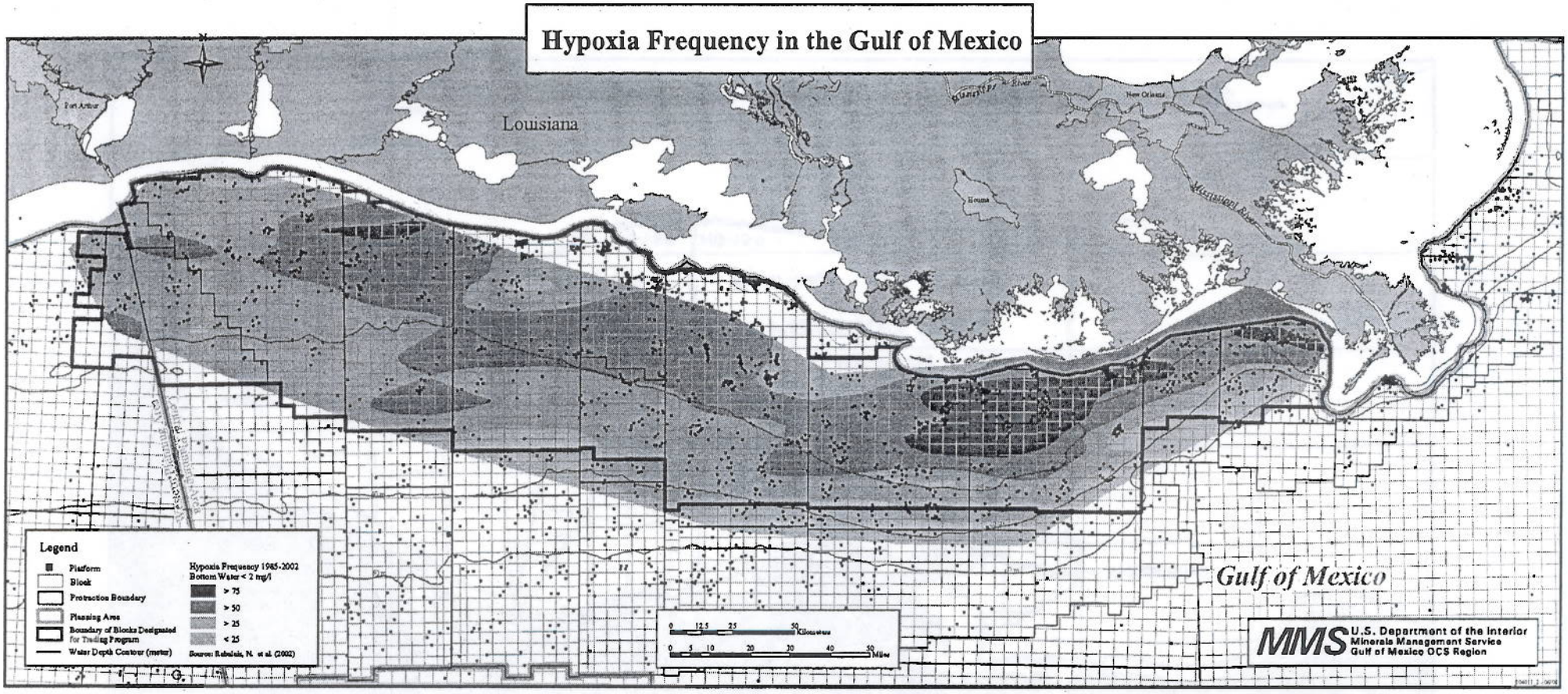
Hypoxia Frequency in the Gulf of Mexico
Louisiana
Gulf of Mexico
Legend
Platform
Block
Protraction Boundary
Planning Area
Boundary of Blocks Designated for Trading Program
Water Depth Contour (meter)
Hypoxia Frequency 1985-2002
Bottom Water < 2 mg/l
> 75
> 50
> 25
< 25
Source: Rabalais, N. et al. (2002)
MMS
U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

Figure 1

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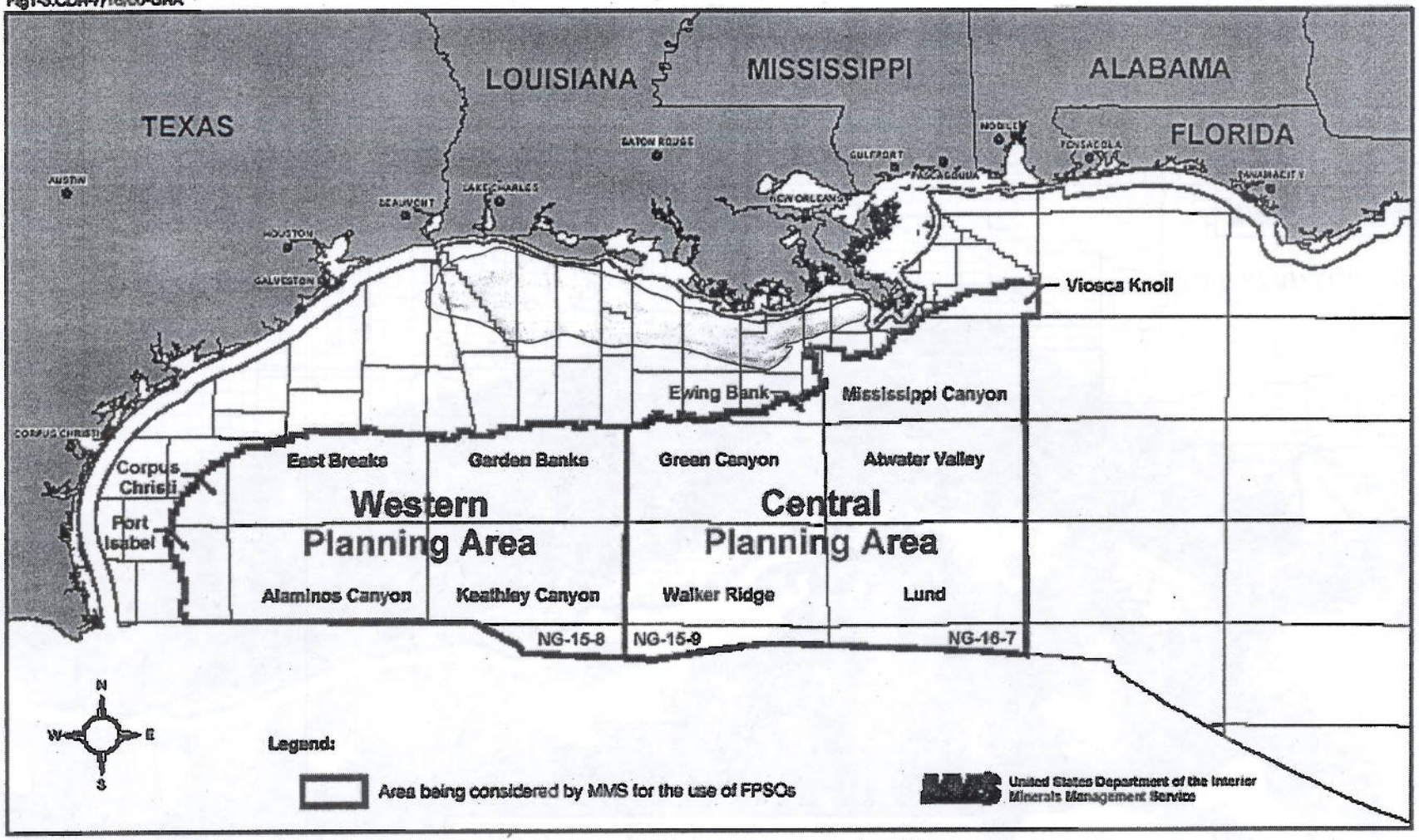
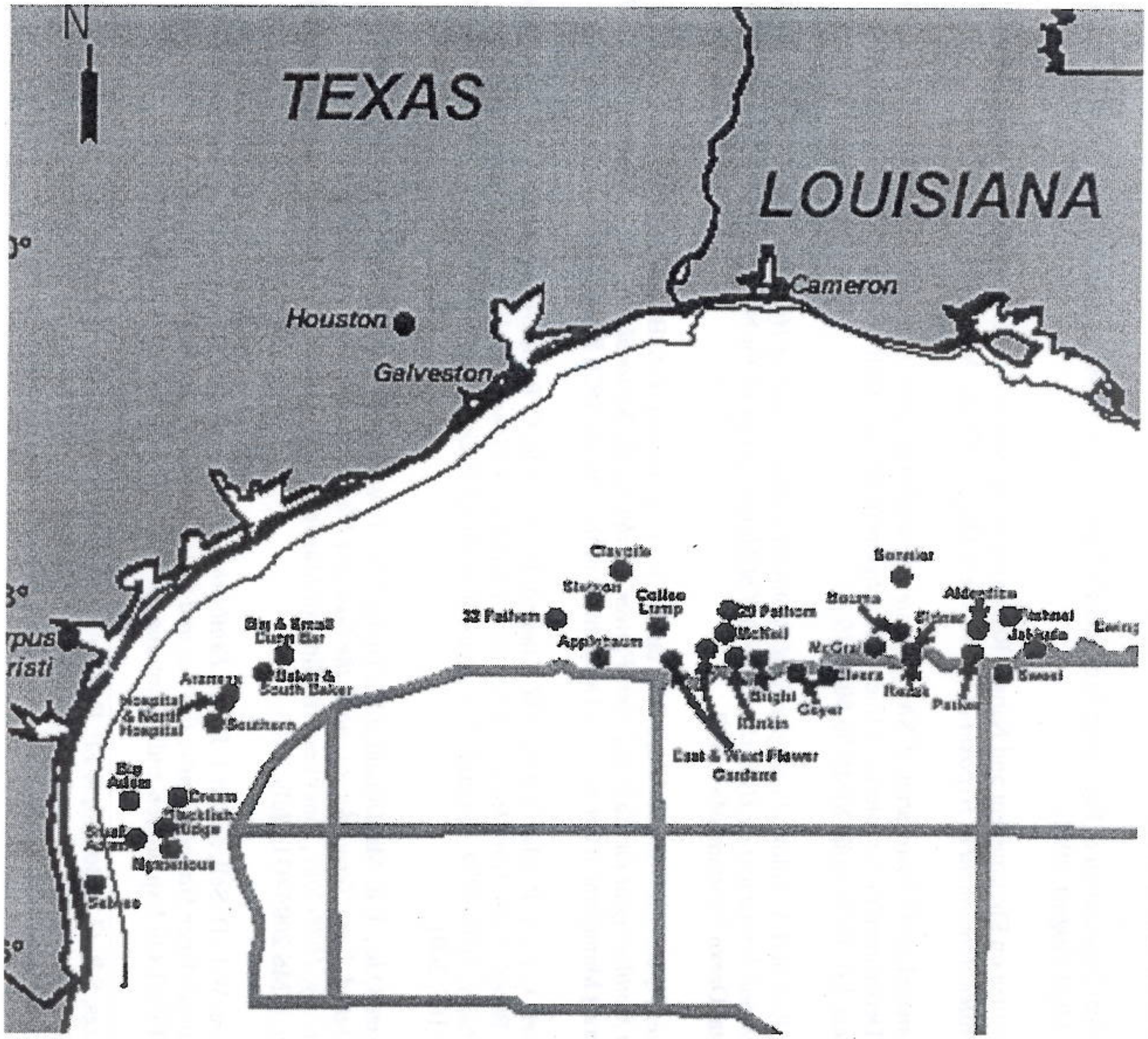


Figure 2

Figure 3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Geyer
East & West Flower Gardens
Bouma
Sonnier
McGrail
Alderdice
Rezak
Parker
Jakkula
Sweet
Southern
Baker & South Baker
Big Adam
Small Adam
Dream
Mysterious
Sebree

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